# Chapter 18

BY:

ETISHA JAIN

VISHU GOYAL

### linux_18.1 Understanding Troubleshooting Modes

• In grup menu you can basically pass kernel arguments like rhgb and quiet
• Kernel argument Rd.break . Using it we get into system before systemd is loading systemd can be replaced by init=/bin/bash.  For historical reasons init kernel is still looking for an init process and the init process is systemd normally and if after loading your initramfs you want to load something else you can type init=/bin/bash
• Can break at loading of base-os using systemd.unit=emergency.target as a boot option.
• Emergency target is a systemd target a state systemd can be starting in with a minimal amount of services.
Emergency target is good if problem arises very early in boot procedure.  If it arises a little bit later then we can just stop before moment that the network services and such are getting loaded . To do so we can use rescue.target (almost a complete OS) .
• We can use boot-disk to stop even before GRUB

## Linux 18.2 Changing the root password

### Procedure Overview
. Enter Grub menu while booting
. Find the line that loads the Linux kernel and add rd.break to end of the line
. mount -o remount,rw /sysroot  to make sure that the mount drive is remount
. chroot /sysroot          to make the root directory
. echo secret | passwd --stdin root
. touch /.autorelabel
. Ctrl-D
. Ctrl-D

### Practical
- Press e to open edit
- type rd.break
- to start kernel with this option use ctrl-x that would drop us in root shell
- mount
- mount -o remount,rw /sysroot(mount -o allows u to pass diff mount options to a mount that is currently active without the need to mount and unmount again.
- mount
- ls
- cd sysroot/
- ls
we need to make it our root becoz we are going to use paaswd and this is writing to the file /etc/shadow .But the file that currently need to be written in current environment is /sysroot/etc/shadow
- chroot /sysroot (to make sysroot as root)
- echo password | passwd --stdin root
- touch /.autorelabel
If we don't write this becoz of SELinux the reboot will fail.
- exit
- Ctrl-D
- ctrl-D
System is restarting
SELinux context label on /etc/shadow file is not set correctly and nobody will be able to login anymore so we need to wait for 2 mins to complete procedure

New password is set .

## Linux 18.3 Troubleshooting FileSystem Issues

### FS RELATED PROBLEMS
- . Real corruption does occur but not often and is automatically fixed
- . Problems occur when making typo's in /etc/fstab
- . To fix : if necessary,remount filesystem in read/write state and edit /etc/fstab
- . Do reboot after changing /etc/fstab to verify
- . Fragmentation can be an issue different tools exist to fix
-    . xfs_fsr is the XFS file system Reorganizer it optimizes XFS file system
-    . e4defrag can be used tk defragment Ext4


### Practical
. Creating problem in /etc/fstab
- vim /etc/fstab
  /dev/sda1    /nowhere      ext4    defaults 0 0
- mount -a
- mkdir /nowhere
- mount -a
- reboot
- give root password maintenance
- vim /etc/fstab
- use dd to delete it
- mount /dev/mapper/rhel-rot
- exit to get out of rescue target
- reboot again
we have an error in root File system but still it is booting
- vim /etc/fstab
It doesn't care becoz the root File System is already loaded as a kernel argument from
GRUB. If we see GRUB boot menu we see the root File System that is listed as an argument
tk Linux kernel which is enough for entering in root File system and file system in
/etc/fstab not needed anymore.

**_Linux 18.4 Troubleshooting Networking Issues_**

COMMON NETWORK ISSUES
. Wrong subnet mask
. Wrong router
. Dns not working


Practical
- ping centos.org
- ip a
- ip a d 192.168.4.235/32
- ip a
- ip a d  192.168.4.235/32  dev ens33
- ip a
- ip a a dev ens33 192.168.4.235/24
- ip a
- ping centos.org
- ip route show
- ip route add default via 192.168.4.2
- ping centos.org
- nmtui (to Persistently fix the network issue not at runtime only)
- use edit a connection
- use edit
- show
- Ipv4 is set to automatic so this system is set to use a DHCP server
- dhclient (going to renew the request to DHCP server)
- ip a
dynamic indicates it us coming from dhcp server

## Linux 18.6 Troubleshooting Software  Issues

. Dependency problems in RPM's
     . Should not occur when using repositories
. Library problems (software can't access libraries anymore)
     . Run ldconfig to update the library cache


Practical
- downloaded an rpm
- ls
- rpm file .rpm
- rpm -ivh .. .rpm file
- yum install ./nmap-7....rpm
- yum install nmap

### Linux 18.7 Troubleshooting Memory Shortage

- top
- check if there is sufficient of Swap but if you don't have create a swap partition
- shut down processes or reboot with sufficient memory
- reboot

**_Linux 18.8 Consulting Red Hat Websites for Troubleshooting Tips_**

. Go to access.redhat.com
. Customer portal
. Login
. developer.redhat.com for free developer subscription

# THANK YOU